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| 09/489,668 | 01/24/2000 | Anand G. Dabak | TI-30020 | 6120 |
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| TEXAS INSTRUMENTS INCORPORATED | | | WILLIAMS, LAWRENCE B | |
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| DALLAS, TX 75265 | | | PAPER NUMBER | |
| | | | 2634 | |

DATE MAILED: 05/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|---------------------------------|---|--|
| Office Action Summary | Application No. 09/489,668 | Applicant(s) DABAK ET AL.  | |
| | Examiner Lawrence B Williams | Art Unit 2634 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 December 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 14-26, 29-34 and 37-52 is/are rejected.
- 7) ☒ Claim(s) 12, 13, 27, 28, 35 and 36 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Response to Arguments***

1. Applicant's arguments filed 28 December 2004 have been fully considered but they are not persuasive. Examiner respectfully submits that applicant argues limitations that are not in the claim. Applicant argues that that master device M always transmits on the same frequency as the immediately preceding slave device S₁ transmission as cited in the specification (pg. 9, lines 21-23). Applicant also argues that this modified frequency hopping pattern advantageously satisfies equation [2] and produces significant performance improvement over previous hopping patterns and lists pg. 6, line 26 through pg. 7, line 5 of the specification for support. Examiner respectfully argues that the specification is not the measure of the invention. Therefore, limitations contained therein cannot be read into the claims for the purpose of avoiding the prior art. In re Sporck, 55 CCPA 743, 386 F.2d 924, 155 USPQ 687 (1968). Applicant also argues that Haartsen and Acampora et al. fail to teach or suggest the problem or solution of the present invention. Examiner agrees, respectfully points out that both references involve indoor wireless systems with frequency hopping and teach the method as disclosed by applicant. Examiner respectfully reiterates that the specification is not the measure of the invention. Therefore the rejections of the previous office action mailed 29 September 2004 are maintained.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 5-11 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Haartsen (Bluetooth-The Universal Radio Interface For Ad Hoc, Wireless Connectivity).

(1) With regard to claim 1, Haartsen discloses in Fig. 3, a communication circuit, comprising: a signal processing circuit arranged to produce a first plurality of data signals and receive a second plurality of data signals, a transmit circuit coupled to receive the first plurality of data signals, the transmit circuit arranged to transmit each data signal of the first plurality of data signals on a respective transmit frequency in a predetermined sequence of transmit frequencies; and a receive circuit coupled to receive each data signal of the second plurality of data signals from a remote transmitter on the respective transmit frequency in the predetermined sequence, the receive circuit applying the second plurality of data signals to the signal processing circuit (pages 112-113).

(2) With regard to claim 5, Haartsen also discloses wherein the communication circuit is arranged to form a piconet with the remote transmitter (page 114, Networking).

(3) With regard to claim 6, Haartsen also discloses wherein the remote transmitter is a master device and wherein the communication circuit is a slave device (page 114-115, Networking).

(4) With regard to claim 7, Haartsen also discloses wherein the first plurality of data bits comprises a plurality of data bits that identify the slave device to the master device (page 113, Packet Definition).

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(5) With regard to claim 8, Haartsen also discloses wherein the signal processing circuit receives the first plurality of data signals from one of a cordless phone handset, a cell phone, a personal digital assistant, a digital camera, and a computer peripheral (Page 113).

(6) With regard to claim 9, Haartsen also discloses wherein the computer peripheral is one of a printer, signals comprises a scanner, a fax machine, and another computer (pg. 110).

(7) With regard to claim 10, Haartsen also discloses wherein the signal processing circuit applies the second plurality of data signals to one of a cordless phone base station, a local area network access point, a computer, and a bridge to other networks (page 113).

(8) With regard to claim 11, Haartsen also discloses wherein the first plurality of data signals includes an identification signal that identifies one of the communication circuit and the remote transmitter (pg. 114-115, Networking).

(9) With regard to claim 29, claim 29 inherits all limitations of claim 1, as claim 29 teaches the method of the communication circuit of claim 1.

7. Claims 14-18, and 41-43 are rejected under 35 U.S.C. 102(b) as being anticipated by Acampora et al. (System Applications for Wireless Indoor Communications).

(1) With regard to claim 14, Acampora et al. discloses a in Figs. 3, 4 and 5, communication circuit, comprising a plurality of antennas coupled to receive a first data signal from a remote transmitter and transmit a second data signal, a measurement circuit coupled to receive the first data signal from the plurality of antennas (pg. 13, col. 2), the measurement circuit arranged to measure the first data signal from each antenna and produce a respective weighting coefficient corresponding to said each antenna; and a transmit circuit coupled to

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receive the second data signal, the transmit circuit arranged to multiply the second data signal by the respective weighting coefficient corresponding to said each antenna, thereby producing a respective weighted second data signal corresponding to said each antenna, the transmit circuit arranged to apply the respective weighted second data signal to the corresponding said each antenna (pg. 13-14, 17).

(2) With regard to claim 15, Acampora et al. also discloses wherein the respective weighting coefficient corresponding to said each antenna has a value corresponding to a received signal strength of the first data signal at said each antenna (p. 13, Narrowband Systems).

(3) With regard to claim 16, Acampora et al. also discloses wherein a first weighting coefficient corresponding to a first antenna of the plurality of antennas has a value of one and a second weighting coefficient corresponding to a second antenna of the plurality of antennas has a value of zero (pg. 13, Antenna diversity with Fading).

(4) With regard to claim 17, Acampora et al. also discloses wherein the plurality of antennas are spaced apart by at least 2 centimeters and by no more than 15 centimeters (pg. 13, Antenna diversity with Fading).

(5) With regard to claim 18, Acampora et al. also discloses in Fig. 3, wherein the plurality of antennas consists of two antennas.

(6) With regard to claim 41, claim 41 inherits all the limitations of claim 14, as claim 14 discloses the method of communication attained by the communication circuit of claim 14.

(7) With regard to claim 42, Acampora et al. also discloses wherein the plurality of antennas are spaced apart by at least 2 centimeters and by no more than 15 centimeters (pg. 13, Antenna diversity with Fading).

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(8) With regard to claim 43, Acampora et al. also discloses in Fig. 3, wherein the plurality of antennas consists of two antennas.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2-4, 30-34, 37-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over being anticipated by Haartsen (Bluetooth-The Universal Radio Interface For Ad Hoc, Wireless Connectivity) as applied to claims 1 and 29 above, and further in view of Acampora et al. (System Applications for Wireless Indoor Communications).

(1) With regard to claim 2, as noted above Haartsen discloses all limitations of claim 1, above. He does not however disclose wherein the remote transmitter transmits each data signal of the second plurality of data signals from a plurality of antennas.

However, Acampora et al. wherein the remote transmitter transmits each data signal of the second plurality of data signals from a plurality of antennas (pg. 13, Antenna Diversity with Fading).

One skilled in the art would have clearly recognized that wherein the remote transmitter transmits each data signal of the second plurality of data signals from a plurality of antennas is a well-known technique introduced in many references. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to apply the method as taught by

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Acampora et al. to the invention of Haartsen to modify the invention of Acampora et al. to incorporate the advantages offered by antenna diversity.

(2) With regard to claim 3, Acampora et al. also discloses wherein each data signal of the second plurality of data signals is multiplied by a weighting coefficient corresponding to a respective antenna of the plurality of antennas, and wherein each said weighting coefficient has a value corresponding to a received signal strength at the respective antenna (pg. 13, Narrowband Systems)

(3) With regard to claim 4, Acampora et al. also discloses wherein each data signal of the second plurality of data signals is multiplied by a weighting coefficient corresponding to a respective antenna of the plurality of antennas, and wherein a first weighting coefficient corresponding to a first antenna of the plurality of antennas has a value of one, and a second weighting coefficient corresponding to a second antenna of the plurality of antenna has a value of zero (pg. 13, Antenna Diversity with Fading).

(4) With regard to claim 30, claim 30 inherits all limitations of claim 2 and 29 above.

(5) With regard to claim 31, claim 31 inherits all limitations of claim 3 and 30 above.

(6) With regard to claim 32, claim 32 inherits all limitations of claims 4 and 31 above.

(7) With regard to claim 33, Haartsen also teaches wherein the remote communication circuit forms a piconet with at least another communication circuit (page 114, Networking).

(8) With regard to claim 34, Haartsen also discloses wherein the first plurality of data signals includes an identification signal that identifies at least one communication circuit (pg. 113, Packet Definition).

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(9) With regard to claim 37, Haartsen also discloses wherein the remote communication circuit is a master device and wherein a slave device receives the second plurality of data signals (pg. 113-114, Networking).

(10) With regard to claim 38, Haartsen also discloses wherein the second plurality of data signals is produced by one of a cordless phone base station, a local area network access point, a computer, and a bridge to other networks (pg. 113).

(11) With regard to claim 39, Haartsen also discloses wherein the first plurality of data signals is produced by one of a cordless phone handset, a cell phone, a personal digital assistant, a digital camera, and a computer peripheral (pg. 113).

(12) With regard to claim 40, Haartsen wherein the computer peripheral is one of a printer, a scanner, a fax machine, and another computer (pg. 113).

9. Claims 19-26 and 44-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Acampora et al. (System Applications for Wireless Indoor Communications) as applied to claims 14 and 41 above, and further in view of Haartsen (Bluetooth-The Universal Radio Interface For Ad Hoc, Wireless Connectivity).

(1) With regard to claim 19, Acampora et al. discloses all limitations of claim 14 above. Acampora et al. does not explicitly disclose wherein the communication circuit is arranged to form a piconet with the remote transceiver, though he does disclose a local area network time-shared among multiple users (pg. 18, Resource Sharing).

However, Haartsen discloses wherein the communication circuit is arranged to form a piconet with the remote transceiver (pg. 114-115, Networking).

One skilled in the art would have clearly recognized that a communication circuit is arranged to form a piconet with a remote transceiver is a well-known technique introduced in many references. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to apply the method as taught by Haartsen to modify the invention of Acampora et al. to incorporate the advantages offered by Blue-tooth technology.

(2) With regard to claim 20, Haartsen also discloses wherein the remote transmitter is a slave device and wherein the communication circuit is a master device (page 114-115, Networking).

(3) With regard to claim 21, Haartsen also discloses wherein the first data signal comprises a plurality of data bits that identify the remote transmitter to communication circuit (page 113, Packet Definition).

(4) With regard to claim 22, Haartsen also discloses wherein remote transmitter is coupled to one of a cordless phone handset, a cell phone, a personal digital assistant, a digital camera, and a computer peripheral (Page 113).

(5) With regard to claim 23, Haartsen also discloses wherein the computer peripheral is one of a printer, signals comprises a scanner, a fax machine, and another computer (pg. 110).

(7) With regard to claim 24, Haartsen also discloses wherein the transmit circuit is coupled to one of a cordless phone base station, a local area network access point, a computer, and a bridge to other networks (pg. 114-115, Networking).

(8) With regard to claim 25, Acampora et al. also discloses in Fig. 3, 4, 5, a communication circuit as in claim 14, further comprising: a summation circuit; and a receive circuit coupled to receive the first data signal, the receive circuit arranged to multiply the first

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data signal by the respective weighting coefficient corresponding to said each antenna, the receive circuit arranged to apply said each first data signal to said summation circuit (pg. 13-14, Narrowband Systems).

(9) With regard to claim 26, Haartsen also discloses wherein the first data signal includes an identification signal that identifies one of the communication circuit and the remote (pg. 113, Packet Definition).

(10) With regard to claim 44, claim 44 inherits all limitations of claims 19 and 41, above.

(11) With regard to claim 45, Haartsen also discloses wherein the remote communication circuit is a slave device (page 114-115, Networking).

(12) With regard to claim 46, Haartsen also discloses wherein the first data signal includes an identification signal that identifies the remote communication circuit (page 113, Packet Definition).

(13) With regard to claim 47, Haartsen also discloses wherein remote communication circuit one of a cordless phone handset, a cell phone, a personal digital assistant, a digital camera, and a computer peripheral (Page 113).

(14) With regard to claim 48, Haartsen also discloses wherein the computer peripheral is one of a printer, signals comprises a scanner, a fax machine, and another computer (pg. 110).

(15) With regard to claim 49, Haartsen also discloses wherein the second data signal is produced by one of a cordless phone base station, a local area network access point, a computer, and a bridge to other networks (pg. 114-115, Networking).

(16) With regard to claim 50, Acampora et al. also discloses in Fig. 3, the method as in claim 41, further comprising the steps of: multiplying the first data signal by the respective

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weighting coefficient of said each antenna, thereby producing a respective first weighted data signal corresponding to said each antenna; and summing each said respective first weighted data signal corresponding to said each antenna, thereby producing a received signal (pg. 13, Antenna diversity).

(17) With regard to claim 51, Acampora et al. also discloses wherein the step of calculating comprises setting each said respective weighting coefficient corresponding to each antenna of the plurality of antennas to a value proportional to a value of the first data signal from said each antenna (pg. 13, Antenna Diversity).

(18) With regard to claim 52, Acampora et al. also discloses wherein the step of calculating comprises setting a first said respective weighting coefficient corresponding to a first antenna of the plurality of antennas to a value of one and setting a second said respective weighting coefficient corresponding to a second antenna of the plurality of antennas to a value of zero in response to the first data signal from the first antenna having a greater value than the first data signal from the second antenna (pg. 13, Antenna Diversity).

Allowable Subject Matter

10. Claims 12-13, 27-28, 35-36 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

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4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a.) Alamouti et al. discloses in US Patent 6,600,776 B1 Vertical Adaptive Antenna Array For A Discrete Multitone Spread Spectrum Communications System.

b.) Molnar discloses in US Patent 6,421,543 B1 Cellular RadioTelephone Base Stations And Methods Using Selected Multiple Diversity Reception.

c.) Agee et al. discloses in US Patent 6,359,923 B1 Highly Bandwidth Efficient Communications.

d.) Webb discloses in US Patent 5,483,557 Channel Equalization in Particular For Fading Channels.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence B Williams whose telephone number is 571-272-3037. The examiner can normally be reached on Monday-Friday (8:00-5:00).

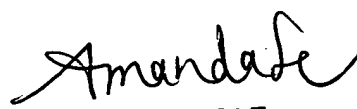
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lawrence B. Williams

lbw

May 24, 2005


AMANDA T. LE
PRIMARY EXAMINER